

Date: Fri, 4 Mar 94 04:30:12 PST
From: Ham-Ant Mailing List and Newsgroup <ham-ant@ucsd.edu>
Errors-To: Ham-Ant-Errors@UCSD.Edu
Reply-To: Ham-Ant@UCSD.Edu
Precedence: Bulk
Subject: Ham-Ant Digest V94 #54
To: Ham-Ant

Ham-Ant Digest Fri, 4 Mar 94 Volume 94 : Issue 54

Today's Topics:

 2m Groundplane Antenna Question
 AEA ISOLLOOP (2 msgs)
 Antennas for scanners?
 A question
 Battle Creek Special
 Looking for info on slot antennas for UHF
 mechanical analogue of radiation resistance?
 MFJ SWR Analyzers (3 msgs)
 MFJ SWR Analyzers (They are susceptible to RFI.) (2 msgs)
 What is the center conductor of RG-59 (2 msgs)

Send Replies or notes for publication to: <Ham-Ant@UCSD.Edu>
Send subscription requests to: <Ham-Ant-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Ant Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-ant".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: 1 Mar 94 10:43:26 GMT
From: ihnp4.ucsd.edu!sdd.hp.com!sgiblab!swrinde!gatech!europa.eng.gtefsd.com!
news.uoregon.edu!netnews.nwnet.net!bach.seattleu.edu!quick!ole!rwing!eskimo!
seacat@network.ucsd.edu
Subject: 2m Groundplane Antenna Question
To: ham-ant@ucsd.edu

<1994Feb25.223634.15321@unet.net.com>

johng@gratton.net.com (John Gratton) writes:

>In article <1994Feb16.002149.26114@cirrus.com> ebs@csparc046.cirrus.com
(eric smith) writes:

>>I am trying to understand how bending the radials on a 1/4 wave
>>groundplane antenna will effect the radiation resistance and
>>radiation pattern of the antenna. I have some measured data that
>>indicates that the magnitude of the impedance is increased when the
>>radials are bent down away from the monopole element. This makes some
>>sense intuitively since the resultant antenna is getting closer to
>>being a dipole.

>>

>>Eric KC5EQI

>Tried mail but it bounced.

>Did you get any data on the vertical radiation pattern for
>your antenna? I am just getting started, and am wondering
>how far off the horizontal the bent radial ground plane
>antenna radiates.

>Does any body else have information on this? I suppose if
>I got off it and bought an antenna book I'd find every
>thing in there :)

>Thanks in advance.

>johng

>--

>John Gratton	
johng@net.com	
>Hans Christian 33 "Nakia"	
(415)780-5774	

The bending of the radials will effect Antenna Imp. more than radiation.
I would assume a ground plane with horiz. radials would be close to 30
Ohms. Where one with a configuration nearer to a dipole (the slope down)
would come closer to 500hms.

Just a thought.

Date: 1 Mar 94 10:34:24 GMT
From: ihnp4.ucsd.edu!sdd.hp.com!sgiblab!swrinde!gatech!europa.eng.gtefsd.com!
news.uoregon.edu!netnews.nwnet.net!bach.seattleu.edu!quick!ole!rwing!eskimo!
seacat@network.ucsd.edu
Subject: AEA ISOLLOOP
To: ham-ant@ucsd.edu

ajg@cbnews1.cb.att.com (anthony.j.gaeta) writes:

>I would like to have your opinion on the ISOLLOOP Antenna?

>Is it worth its price? If not, what type of antenna

>would you recommend in its place?

>This is for a friend who lives in a condo and would like to

>get his station back on the air. His space for an antenna is limited,

>and no, moving is not an option at this time.

>Thanks,

>Tony Gaeta

>N2NKC

I dont own an ISOLLOOP, but I will tell you that I live in the Seattle

area. I worked a Marine Mobile, of the northern coast of antartica

on 15 meters one day. He was using an ISOLLOOP with 100 watts.

It seemed to work pretty well. For an apartment, I would say go for it!

R. Seacat KB7ZFU/AA

Date: Thu, 3 Mar 1994 17:03:30 GMT

From: news.acns.nwu.edu!math.ohio-state.edu!howland.reston.ans.net!agate!

dog.ee.lbl.gov!newshub.nosc.mil!news!Roger.Keating@network.ucsd.edu

Subject: AEA ISOLLOOP

To: ham-ant@ucsd.edu

Tony, my father (WA7JHA) has an AEA Iso-loop and is pleased with it.

We played around with it and some dipoles and the best feature about

the Iso-loop IMO is that it is such a narrow bandwidth; it seemed to

just drop the QRM out except at the place we were trying to tune.

It has to be one of the poorest control mechanisms I've ever had to

use; we replaced the colored LEDs with a meter and I think AEA should

have offered a much better control head for users.

These days, the human interface makes more of a difference than the
technology does it seems to me. While the antenna was fine, we were
having no fun trying to get the thing to tune using that awful set of
controls.

My opinions.

Roger Keating - KD6EFQ

Date: Thu, 3 Mar 1994 16:20:27 GMT
From: ihnp4.ucsd.edu!swrinde!cs.utexas.edu!csc.ti.com!tilde.csc.ti.com!
skopen.dseg.ti.com!sc04!jmyers@network.ucsd.edu
Subject: Antennas for scanners?
To: ham-ant@ucsd.edu

I've had really good luck with a discone. About 18" diameter disc on a 18" cone with good old rg-58 (foam insulation) for the feedline. Any good wideband antenna design should work. I put a neon (ne-2) bulb at the feed point for static and lightening protection along with a good ground strap and ground rod. It's about 30' from my 40m yagi. Regards.

Date: Thu, 3 Mar 1994 19:06:02 GMT
From: news.acns.nwu.edu!math.ohio-state.edu!howland.reston.ans.net!
europa.eng.gtefsd.com!gatech!wa4mei!ke4zv!gary@network.ucsd.edu
Subject: A question
To: ham-ant@ucsd.edu

In article <1994Feb28.171917.10394@kocrsv01.delcoelect.com>
c2xjcb@kocrsv01.delcoelect.com (James Bach) writes:

>
>In article <2kj3e1\$eb0@master.cs.rose-hulman.edu>, derry@NeXtWork.Rose-Hulman.Edu
(John Derry) writes:
>> If I am given two choices as follows on some inexpensive coax at a hamfest
>> fleamarket which do I buy?
>>
>> The cables are identical in every way, same markings, price, length, etc.
>>
>> At 144 MHz, when I measure the SWR with an accurate SWR meter one cable
>> gives a SWR = 10 and the other gives SWR = 6. (SWR being measured at one
>> end and the other end open (Or shorted.)
>>
>> Which cable should I buy?
>
>Depends upon the electrical LENGTH of the line. Remember that a
>multiple of 1/2-wavelengths will show the same impedance to the Tx as
>at the far end; thus a short will look like a short, and open will
>look like an open. BUT an odd-multiple of 1/4-wavelength will look
>like the inverse of the far end; an open looks like a short, a short

>looks like an open.

>

>Thus, if you don't know what the electrical wavelength of the cable
>is, you have no clue what the end-to-end transformation is going to be.

But, of course, YOU DON'T CARE because the problem states the two cables under test are of *identical* length and type. So *whatever* transformer action they may offer to an open or short on the other end will also be *identical* except for *cable loss* which will lower the SWR by attenuating the return signal. So you *always* go with the one with the highest SWR because it has the lowest loss of the two.

Now this method does not give you the *absolute* loss of either cable, but that's not the question being asked.

Gary

--

Gary Coffman KE4ZV		You make it,		gatech!wa4mei!ke4zv!gary
Destructive Testing Systems		we break it.		uunet!rsiatl!ke4zv!gary
534 Shannon Way		Guaranteed!		emory!kd4nc!ke4zv!gary
Lawrenceville, GA 30244				

Date: 3 Mar 1994 20:27:52 GMT
From: news.acns.nwu.edu!math.ohio-state.edu!magnus.acs.ohio-state.edu!
peri.acs.ohio-state.edu!rdixon@network.ucsd.edu
Subject: Battle Creek Special
To: ham-ant@ucsd.edu

What is the Battle Creek Special antenna that was used by the recent 3Y operation on the low bands?

Bob W8ERD

Date: 2 Mar 1994 23:43:43 GMT
From: ihnp4.ucsd.edu!mvb.saic.com!news.cerf.net!usc!howland.reston.ans.net!agate!
msuinfo!harbinger.cc.monash.edu.au!usenet@network.ucsd.edu
Subject: Looking for info on slot antennas for UHF
To: ham-ant@ucsd.edu

In article <2l2f19INNiir@newsstand.cit.cornell.edu> F. Kevin Feeney
<fkf1@cornell.edu> writes:

>

>A couple of us remember seeing some sort of antenna based on a cylinder
>with a slot cut
>vertically in it that radiates horizontally. I think the basis of it is a
>wavelength circumference cylinder with a halfwave long slot cut into it,
>fed midpoint of the slot with 50 ohm feed. Does that ring any bells with
>anyone?
>

>Thanks
>
>Kevin, WB2EMS

Kevin,

You could try the RSGB VHF/UHF Manual or the RSGB Microwave Handbook.
I have them at home - could check if need be. I recall see items in
one or both of these books on Alford slot antennas - 1296 MHZ I think?
The books might be of assistance.

Good luck

Peter

peter@gas.cc.monash.edu.au

Date: Thu, 3 Mar 1994 02:47:34 GMT
From: ihnp4.ucsd.edu!mvp.saic.com!news.cerf.net!usc!sdd.hp.com!col.hp.com!
srgenprp!alanb@network.ucsd.edu
Subject: mechanical analogue of radiation resistance?
To: ham-ant@ucsd.edu

Gary Coffman (gary@ke4zv.atl.ga.us) wrote:
: In article <CLyB6n.CLz@srgenprp.sr.hp.com> alanb@sr.hp.com (Alan Bloom) writes:
: >Alan M. Horowitz (horowitz@nosc.mil) wrote:
: >: Mostly, we can find mechanical analogues to electrical phenomena.
: >: What is the mechanical analogue of radiation resistance?
: >
: >In an automobile, horsepower is like the transmitted power into an
: >antenna.
: >
: >The rolling resistance and wind resistance (i.e. power required to
: >make the car go) are like the radiation resistance of an antenna.

: I don't think that's a very good analogy. If we decrease rolling
: and wind resistance, our car can go faster. If we decrease radiation
: resistance, I don't think our signal goes further. :-)

Yes, but you do get more current, which is the analog of mechanical motion.

AL N1AL

Date: Wed, 2 Mar 1994 23:53:06 GMT
From: ihnp4.ucsd.edu!sdd.hp.com!hpscit.sc.hp.com!cupnews0.cup.hp.com!
news1.boi.hp.com!hp-pcd!hpcvsnz!tomb@network.ucsd.edu
Subject: MFJ SWR Analyzers
To: ham-ant@ucsd.edu

In article <2l0bor\$g9m@ncar.ucar.edu> elmore@rap.ucar.edu (Kim Elmore) writes:
>Taking
>this to a more reasonable point, the lowest SWR should occur at
>resonance, when the antenna impedance is purely resistive; any
>deviation from that point will yield a rise in SWR regardless of the
>impedance value due to the reactive components. Have I missed
>something?

If the resistive part of the antenna impedance were a constant it would be true that adding any reactive component would increase the SWR. However, if the resistive part changes with frequency, which it in general does, you can get to a (very slightly) lower SWR by changing frequency, before the SWR starts to go up. Explaining this another way: if the resistive part were constant, the $d(\text{SWR})/df$ at resonance would be zero, and would increase on either side of resonance to a positive value. However, since dR/df is not zero at resonance, then $d(\text{SWR})/df$ is not zero at resonance, and you will be able to go some direction to get to a lower SWR before the dX/df puts enough X in that it takes over and puts you at a higher SWR.

Since typically the reactance is changing much faster than the resistance, I'd expect this to be quite a small effect, and lowest SWR should occur very near resonance, for things like 1/4 wave antennas fed against ground, or 1/2 wave center fed antennas. (I'd want to think more carefully about end-fed 1/2 waves, where R is max at resonance and the SWR is very high...gut feel is you'd get lowest SWR at resonance with these, but I think you don't have to get very far from resonance till the resistive component is changing more rapidly than the reactive and you actually get to a lower SWR on something like a 50 ohm line...resulting in very easy to confuse results.)

73, K7ITM

Date: Thu, 3 Mar 1994 02:53:25 GMT
From: ihnp4.ucsd.edu!sdd.hp.com!col.hp.com!srigenprp!alanb@network.ucsd.edu
Subject: MFJ SWR Analyzers
To: ham-ant@ucsd.edu

Kim Elmore (elmore@rap.ucar.edu) wrote:
: In article <1994Mar1.162350.22173@ke4zv.atl.ga.us> gary@ke4zv.atl.ga.us (Gary
Coffman) writes:

: ... snip ...

: >antennas. For example, a 1/4-wave monopole has a feed point impedance
: >at resonance of about 36 ohms. At either side of resonance, the
: >impedance (complex) increases. So there are two points where the
: >impedance will be closer to 50 ohms than the resonant point. ...

: Gary, are you **sure** of this? ...
: the lowest SWR should occur at
: resonance, when the antenna impedance is purely resistive; any
: deviation from that point will yield a rise in SWR regardless of the
: impedance value due to the reactive components. Have I missed
: something?

No, you are exactly right. Adding reactance in series with 36 ohms
(which is essentially what happens when you tune a 1/4-wave ground
plane off resonance) can only increase the SWR, even in a 50-ohm
system. Lowest SWR occurs at resonance.

AL N1AL

Date: Wed, 2 Mar 1994 12:23:29 GMT
From: ihnp4.ucsd.edu!mvb.saic.com!news.cerf.net!usc!howland.reston.ans.net!
darwin.sura.net!perot.mtsu.edu!raider!theporch!jackatak!root@network.ucsd.edu
Subject: MFJ SWR Analyzers
To: ham-ant@ucsd.edu

henrys@netcom.com (Henry B. Smith) writes:
> Is anybody familiar with either the MFJ-249 or MFJ-259 SWR analyzers?
Not sure exactly in what context you mean this, but I have an MFJ-249,
and count myself as a very satisfied customer.

We have used the MFJ-249 on a VHF antenna of unknown, but probable
commercial frequency band, resonance... the 249 showed the

"double-dip" of a "false" resonance and the "true" resonant frequency with uncanny accuracy. We then put an IFR instrument on the antenna and observed the same SWR curve and resonance points, albeit with far greater accuracy, and graphed for us. I'd love to have the IFR (Gary, I'll take yours when you are tired of it! ;^) but I am not willing to part with nearly 100 TIMES the bux I have in my MFJ-249.

> Can the MFJ-259 really measure feed-point resistance when it is
> inserted at the equipment end of the coax?

Don't know. The 249 can be calibrated and checked with feedline of known impedance, and can pretty accurately measure self-resonant points on the antenna, as long as one doesn't fall into the trap of thinking a 1.0:1 SWR is required to be resonant! ;^)

> A general question: Can you dependably determine the resonance of an
> antenna by looking for the lowest SWR?

I gotta think about this... in an antenna designed for a feedpoint impedance of, say, 280 Ohms, I suspect that lowest SWR on a 50 ohm feedline might come a LONG way from the self-resonant frequency of the antenna. Guess I need to go back to the drawing boards... thanks for the thought material...

73

Jack, W4PPT/Mobile (75M SSB 2-letter WAS #1657 -- all from the mobile! ;^)

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+-----+
| Jack GF Hill          |Voice: (615) 459-2636 -           Ham Call: W4PPT |
| P. O. Box 1685        |Modem: (615) 377-5980 -   Bicycling and SCUBA Diving |
| Brentwood, TN 37024|Fax:   (615) 459-0038 -           Life Member - ARRL |
| root@jackatak.raider.net - "Plus ca change, plus c'est la meme chose" |
+-----+
```

Date: Thu, 3 Mar 1994 17:13:40 GMT
From: netcomsv!netcom.com!henryrs@decwrl.dec.com
Subject: MFJ SWR Analyzers (They are susceptible to RFI.)
To: ham-ant@ucsd.edu

Had a similar problem at Field Day last year.

I used somebody's MFJ-249 to check out a R7 vertical and it went crazy until I got the other stations at our FD site to stop transmitting for a sec.

After that, it told me what I wanted to know.

Smitty, NA5K

--

```
-----  
| Henry B. Smith - NA5K                               henrys@netcom.com |  
| Dallas, Texas                                         |  
|                                                       |  
| "I'm not sure I understand everything that I know"   |  
-----
```

Date: 2 Mar 1994 21:21:12 -0800
From: ihnp4.ucsd.edu!ucsnews!sol.ctr.columbia.edu!howland.reston.ans.net!
vixen.cso.uiuc.edu!news.uoregon.edu!netnews.nwnet.net!saturn.wwwc.edu!
shasta.wwwc.edu!not-for-mail@network.ucsd.edu
Subject: MFJ SWR Analyzers (They are susceptible to RFI.)
To: ham-ant@ucsd.edu

I found the MFJ VSWR analyzer worked great when connected to a test component like a resistor or capacitor, but when connected to my 4 element 5 band quad at 120 feet it told me that the VSWR was 4 to 1 which was not what I measured with my transmitter and VSWR bridge. (The bridge measured very close to 1 to 1.) I was stumped for quite a few days on this one until I recalled that I had to put a "KUJ filter" in between my receiver's antenna input and the antenna to filter the local AM station (KUJ) out and thus eliminate some intermodulation distortion I had noticed several places in the short-wave spectrum. When I put the filter in line between the analyzer and the quad, the results got much better (around 2.5 to 1 if I recall right). I had the same type of experience when I attempted to use the VSWR analyzer on a 4 X 4 dipole curtain array at a short-wave broadcast station on Guam. The MFJ analyzer is fine for an antenna that isn't receiving a lot of RF (a crummy antenna), but worthless for really big arrays. The other short-coming is that it doesn't measure the phase of the reflection coefficient which would allow the impedance to be calculated. I guess you can't expect to get a \$30,000 network analyzer for \$119.95.

--

Rob Frohne
E. F. Cross School of Engineering, Walla Walla College
Phone: (509) 527-2075 FAX: (509) 527-2867
Internet e-mail: frohro@wwc.edu

Date: 3 Mar 94 08:48:58
From: ihnp4.ucsd.edu!library.ucla.edu!csulb.edu!nic-nac.CSU.net!usc!
sol.ctr.columbia.edu!hamblin.math.byu.edu!news.byu.edu!news@network.ucsd.edu
Subject: What is the center conductor of RG-59
To: ham-ant@ucsd.edu

I noticed the other day that a magnet is attracted to the center conductor of RG 59 coax. What is this stuff? It certainly not copper or aluminum.

Richard

Date: 3 Mar 1994 16:42:26 GMT
From: ihnp4.ucsd.edu!library.ucla.edu!europa.eng.gtefsd.com!news.msfc.nasa.gov!
sol.ctr.columbia.edu!news.kei.com!yeshua.marcam.com!charnel!olivea!korie!
newsworthy.West.Sun.COM!sunspot!myers@@
Subject: What is the center conductor of RG-59
To: ham-ant@ucsd.edu

In article <2l50t8\$i5@bones.et.byu.edu> richard@ee.byu.edu (Richard Christensen) writes:

>
>I noticed the other day that a magnet is attracted to the center conductor of
>RG 59 coax. What is this stuff? It certainly not copper or aluminum.
>
>Richard
>

It is copper-coated steel.

--

* Dana H. Myers KK6JQ, DoD 466 | Views expressed here are *
* (310) 348-6043 | mine and do not necessarily *
* Dana.Myers@West.Sun.Com | reflect those of my employer *
* This Extra supports the abolition of the 13 and 20 WPM tests *

End of Ham-Ant Digest V94 #54

